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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			LI, AIMEE J	
			ART UNIT	PAPER NUMBER
			2183	

DATE MAILED: 08/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/586,961

Applicant(s)

OHWADA, AKIHIKO

Examiner

Aimee J Li

Art Unit

2183

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 May 2004 and 02 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 11-26 and new claims 27-29 have been considered. Claims 11, 15, 17, 19, and 23 have been amended as per Applicant's request. New claims 27-29 have been added as per Applicant's request.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 28 and 29 are rejected under 35 U.S.C. 102(e) as being taught by Krygowski et al., U.S. Patent Number 6,049,860 (herein referred to as Krygowski).

4. Referring to claim 28, Krygowski has taught a processor execution pipeline method, comprising:

- a. Decoding a first instruction into a first control signal, and decoding all other instructions with the exception of the first instruction into a second control signal (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6);
- b. Performing a first operation on a first data when receiving the first control signal, and passing the first data when receiving the second control signals (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-

- 27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6);
- c. Decoding a second instruction into a third control signal, and decoding all other instructions with the exception of the second instruction into a fourth control signal (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6);
 - d. Performing a second operation on a second data when receiving the second control signal, where the second data is an output of the first processing unit (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6); and
 - e. Selecting an output of a second processing unit or the second data (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6).
5. In regards to Krygowski, there is some type of control that determines when an instruction enters a pipeline stage and determines when to bypass a stage based upon generated control signals, i.e. when the instruction is a store type instruction, the computation stages of the pipeline are bypassed based upon the control signals from the control unit, which receives the instructions and converts the instructions into the correct control signals (Krygowski column 1,

lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6).

6. Referring to claim 29, Krygowski has taught a processor execution pipeline method, comprising:

- a. Decoding a first instruction into a first control signal and all other instructions into a second control signal, and decoding a second instruction into a third control signal and all other instructions with the exception of the second instruction into a fourth control signal (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6);
- b. First and second processing units respectively executing first and second instructions using data held in a latching unit, wherein each instruction is decoded to pass the data held in the latching unit through the first processing unit (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6).

7. In regards to Krygowski, there is some type of control that determines when an instruction enters a pipeline stage and determines when to bypass a stage based upon generated control signals, i.e. when the instruction is a store type instruction, the computation stages of the pipeline are bypassed based upon the control signals from the control unit, which receives the instructions and converts the instructions into the correct control signals (Krygowski column 1,

lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 11-27 are rejected under 35 U.S.C. 103(a) as being taught by Krygowski et al., U.S. Patent Number 6,049,860 (herein referred to as Krygowski) in view of Texas Instruments' Semiconductor Service Support (herein referred to as TI).

10. Referring to claim 11, Krygowski has taught a processor execution pipeline, comprising:

- a. A unit that determines at least a kind of instruction, decodes a first instruction into a first control signal, and decodes all other instructions with the exception of the first instruction into a second control signal upon determining at least the kind of instruction (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6);
- b. A first processing unit that performs a first operation on a first data when receiving the first control signal, and passes the first data when receiving the second control signal (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6);

- c. A unit that determines at least a kind of instruction, decodes a second instruction into a third control signal, and decodes all other instructions with the exception of the second instruction into a fourth control signal upon determining at least the kind of instruction (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6);
 - d. A second processing unit that performs a second operation on a second data when receiving the third control signal where the second data is an output of the first processing unit (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6); and
 - e. A multiplexer that selects an output of the second processing unit or the second data (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6).
11. In regards to Krygowski, there is some type of control that determines when an instruction enters a pipeline stage and determines when to bypass a stage based upon generated control signals, i.e. when the instruction is a store type instruction, the computation stages of the pipeline are bypassed based upon the control signals from the control unit, which receives the instructions and converts the instructions into the correct control signals (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6). Krygowski has not

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explicitly taught a first instruction decoding unit and a second instruction decoding unit.

However, Krygowski insinuates that there is some type of control system which generates control signals to determine when instructions move from stage to stage and when a stage is bypassed (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6). TI has taught that a decoder simply converts information into a format more readily understood by the system (TI term "Decoder"). A person of ordinary skill in the art at the time the invention was made would have recognized that a decoder generates control signals from the instructions understood and usable by the system. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the decoder of TI in the device of Krygowski.

12. Referring to claim 12, Krygowski has taught wherein the multiplexer selects an output of the second processing unit when receiving the third control signal, and selects the second data when receiving the fourth control signal (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6).

13. Referring to claim 13, Krygowski has taught a latching unit that holds the output of the first processing unit where the second data is data held by the latching unit (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6). In regards to Krygowski, the pipe stages registers are latches, since they store data. See the definition of latch from FOLDOC provided in previous actions.

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14. Referring to claim 14, Krygowski has taught wherein the first processing unit receives multiple data as the first data (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6).

15. Referring to claim 15, Krygowski has taught a processor execution pipeline, comprising:

- a. A unit that determines at least a kind of instruction, decodes a first instruction into a first control signal, and decodes all other instructions with the exception of the first instruction into a second control signal upon determining at least the kind of instruction (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6);
- b. A first processing unit that performs a first operation on a first data when receiving the first control signal (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6);
- c. A multiplexer that selects an output of the first processing unit or the first data (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6);
- d. A unit that determines at least a kind of instruction, decodes a second instruction into a third control signal, and decodes all other instructions with the exception of the second instruction into a fourth control signal upon determining at least the

kind of instruction (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6); and

- e. A second processing unit that performs a second operation on a second data when receiving the third control signal, and passes the second data when receiving the fourth control signal, where the second data is an output of the multiplexer (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6).

16. In regards to Krygowski, there is some type of control that determines when an instruction enters a pipeline stage and determines when to bypass a stage based upon generated control signals, i.e. when the instruction is a store type instruction, the computation stages of the pipeline are bypassed based upon the control signals from the control unit, which receives the instructions and converts the instructions into the correct control signals (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6). Krygowski has not explicitly taught a first instruction decoding unit and a second instruction decoding unit.

However, Krygowski insinuates that there is some type of control system which generates control signals to determine when instructions move from stage to stage and when a stage is bypassed (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6). TI has taught that a decoder simply converts information into a format more readily

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understood by the system (TI term "Decoder"). A person of ordinary skill in the art at the time the invention was made would have recognized that a decoder generates control signals from the instructions understood and usable by the system. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the decoder of TI in the device of Krygowski.

17. Referring to claim 16, Krygowski has taught wherein the multiplexer selects an output of the first processing unit when receiving the first control signal, and selects the first data when receiving the second control signal (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6).

18. Referring to claim 17, Krygowski has taught a latching unit that holds the output of the multiplexer, where the second data is data held by the latching unit (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6). In regards to Krygowski, the pipe stages registers are latches, since they store data. See the definition of latch from FOLDLOC provided in previous actions.

19. Referring to claim 18, Krygowski has taught wherein the first processing unit receives multiple data as the first data, and the multiplexer receives the output of the first operating unit and one of the multiple data (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6).

20. Referring to claim 19, Krygowski has taught a processor execution pipeline, comprising:

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- a. A unit that determines at least a kind of instruction, decodes a first instruction into a first control signal, and decodes all other instructions with the exception of the first instruction into a second control signal upon determining at least the kind of instruction (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6);
- b. A first processing unit that performs a first operation on a first data when receiving the first control signal, and passes the first data when receiving the second control signal (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6);
- c. A unit that determines at least a kind of instruction, decodes the first instruction into a third control signal, decodes a second instruction into a fourth control signal, and decodes all other instructions with the exception of the first and second instructions into a fifth control signal upon determining at least the kind of instruction (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6);
- d. A second processing unit that performs a second operation on a second data when receiving the third control signal, and performs a third operation on the second data when receiving the fourth control signal, where the second data is an output of the first processing unit (Krygowski column 1, lines 13-38; column 1, line 61

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to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34;

Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6); and

- e. A multiplexer that selects an output of the second processing unit or the second date (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6).

21. In regards to Krygowski, there is some type of control that determines when an instruction enters a pipeline stage and determines when to bypass a stage based upon generated control signals, i.e. when the instruction is a store type instruction, the computation stages of the pipeline are bypassed based upon the control signals from the control unit, which receives the instructions and converts the instructions into the correct control signals (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6). Krygowski has not explicitly taught a first instruction decoding unit and a second instruction decoding unit.

However, Krygowski insinuates that there is some type of control system which generates control signals to determine when instructions move from stage to stage and when a stage is bypassed (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6). TI has taught that a decoder simply converts information into a format more readily understood by the system (TI term "Decoder"). A person of ordinary skill in the art at the time the invention was made would have recognized that a decoder generates control signals from the instructions understood and usable by the system. Therefore, it would have been obvious to a

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person of ordinary skill in the art at the time the invention was made to incorporate the decoder of TI in the device of Krygowski.

22. Referring to claim 20, Krygowski has taught wherein the multiplexer selects an output of the second processing unit when receiving either one of the third or the fourth control signals, and selects the second data when receiving the fifth control signal (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6).

23. Referring to claim 21, Krygowski has taught a latching unit that holds the output of the first processing unit, where the second data is data held by the latching unit (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6). In regards to Krygowski, the pipe stages registers are latches, since they store data. See the definition of latch from FOLDOC provided in previous actions.

24. Referring to claim 22, Krygowski has taught wherein the first processing unit receives multiple data as the first data (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6).

25. Referring to claim 23, Krygowski has taught a processor execution pipeline, comprising:

- a. A unit that determines at least a kind of instruction, decodes a first instruction into a first control signal, decodes a second instruction into a second control signal, and decodes all other instructions with the exception of the first and second instructions into a third control signal upon determining at least the kind of

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- instruction (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6);
- b. A first processing unit that performs a first operation on a first data when receiving the first control signal, and performs a second operation on the first data when receiving the second control signal (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6);
- c. A multiplexer that selects an output of the first processing unit or the first data (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6);
- d. A decoding unit that decodes the first instruction into a fourth control signal, and decodes all other instructions with the exception of the first instruction into a fifth control signal upon determining at least the kind of instruction (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6);
- e. A second processing unit that performs a third operation on a second data when receiving the fourth control signal, and passes the second data when receiving the fifth control signal, where the second data is an output of the multiplexer (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column

3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6).

26. In regards to Krygowski, there is some type of control that determines when an instruction enters a pipeline stage and determines when to bypass a stage based upon generated control signals, i.e. when the instruction is a store type instruction, the computation stages of the pipeline are bypassed based upon the control signals from the control unit, which receives the instructions and converts the instructions into the correct control signals (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6). Krygowski has not explicitly taught a first instruction decoding unit and a second instruction decoding unit. However, Krygowski insinuates that there is some type of control system which generates control signals to determine when instructions move from stage to stage and when a stage is bypassed (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6). TI has taught that a decoder simply converts information into a format more readily understood by the system (TI term "Decoder"). A person of ordinary skill in the art at the time the invention was made would have recognized that a decoder generates control signals from the instructions understood and usable by the system. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the decoder of TI in the device of Krygowski.

27. Referring to claim 24, Krygowski has taught wherein the multiplexer selects an output of the first processing unit when receiving either one of the first or the second control signals, and

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selects the first data when receiving the third control signal (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6).

28. Referring to claim 25, Krygowski has taught a latching unit that holds the output of the multiplexer, where the second data is data held by the latching unit (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6). In regards to Krygowski, the pipe stages registers are latches, since they store data. See the definition of latch from FOLDLOC provided in previous actions.

29. Referring to claim 26, Krygowski has taught wherein the first processing unit receives multiple data as the first data, and the multiplexer receives the output of the first operating unit and one of the multiple data (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6).

30. Referring to claim 27, Krygowski has taught a processor execution pipeline having at least a latching unit to hold and output data, comprising:

- a. A unit to convert a first instruction into a first control signal, and to convert all other instructions with the exception of the first instruction into a second control signal (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6);

- b. A first processing unit to perform a first operation on a first data when receiving the first control signal, and to pass the first data when receiving the second control signal (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6);
- c. A unit to convert a second instruction into a third control signal, and to convert all other instructions with the exception of the second instruction into a fourth control signal (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6);
- d. A second processing unit to perform a second operation on a second data when receiving the third control signal where the second data is an output of the first processing unit (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6); and
- e. A multiplexer that selects an output of the second processing unit or the second data (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6);
- f. Wherein the latching unit holds an output of the first processing unit and the second data is held by the latching unit allowing the latching unit to be shared by the first a second processing units (Krygowski column 1, lines 13-38; column 1,

line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6). In regards to Krygowski, the pipe stages registers are latches, since they store data. See the definition of latch from FOLDOC provided in previous actions.

31. In regards to Krygowski, there is some type of control that determines when an instruction enters a pipeline stage and determines when to bypass a stage based upon generated control signals, i.e. when the instruction is a store type instruction, the computation stages of the pipeline are bypassed based upon the control signals from the control unit, which receives the instructions and converts the instructions into the correct control signals (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6). Krygowski has not explicitly taught a first instruction decoding unit and a second instruction decoding unit. However, Krygowski insinuates that there is some type of control system which generates control signals to determine when instructions move from stage to stage and when a stage is bypassed (Krygowski column 1, lines 13-38; column 1, line 61 to column 2, line 3; column 3, lines 8-27; column 3, line 49 to column 4, line 34; Figure 2; Figure 3; Figure 4; Figure 5; and Figure 6). TI has taught that a decoder simply converts information into a format more readily understood by the system (TI term "Decoder"). A person of ordinary skill in the art at the time the invention was made would have recognized that a decoder generates control signals from the instructions understood and usable by the system. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the decoder of TI in the device of Krygowski.

Response to Arguments

32. Applicant's arguments with respect to claims 11-29 have been considered but are moot in view of the new ground(s) of rejection.

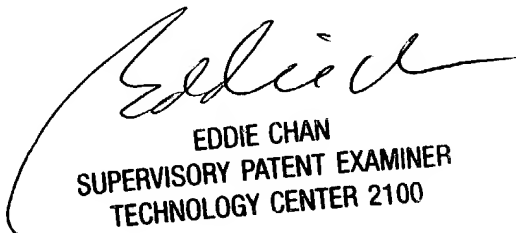
Conclusion

33. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aimee J Li whose telephone number is (703) 305-7596. The examiner can normally be reached on M-T 7:30am-5:00pm.

34. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Chan can be reached on (703) 305-9712. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

35. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AJL
Aimee J. Li
August 21, 2004


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